# FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

**November 25 to December 1, 2012 (Week 48)**

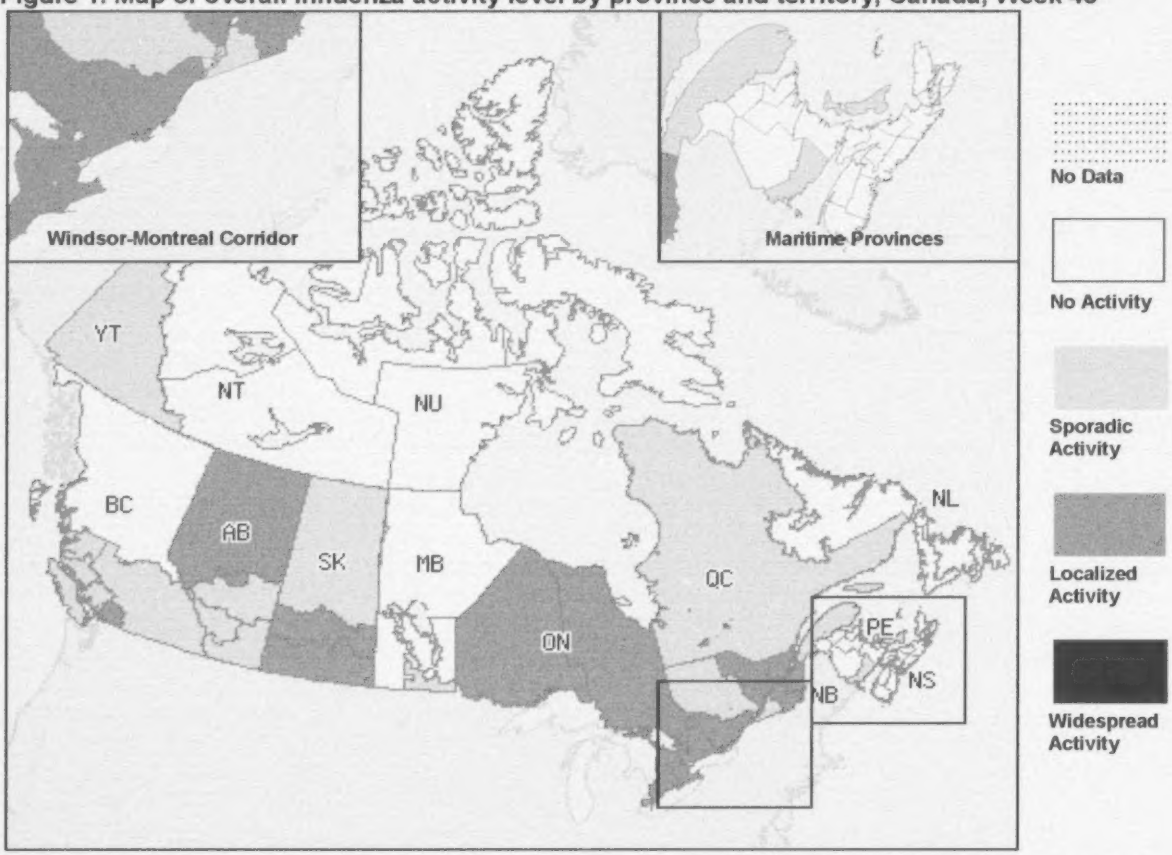
## Overall Influenza Summary

- Influenza activity in Canada continued to increase in week 48.
- More regions reported sporadic activity compared to the previous week.
- A total of 414 laboratory detections of influenza were reported, of which 97.3% were for influenza A viruses, predominantly A(H3N2).
- Eleven influenza outbreaks were reported, all in long-term-care facilities.
- Eight paediatric influenza-associated hospitalizations were reported through the IMPACT network, and six hospitalizations in adults ≥20 years of age were reported through Aggregate surveillance.
- The ILI consultation rate increased compared to the previous week and is above the expected range for this time of year.

## Influenza Activity (geographic spread) and Outbreaks

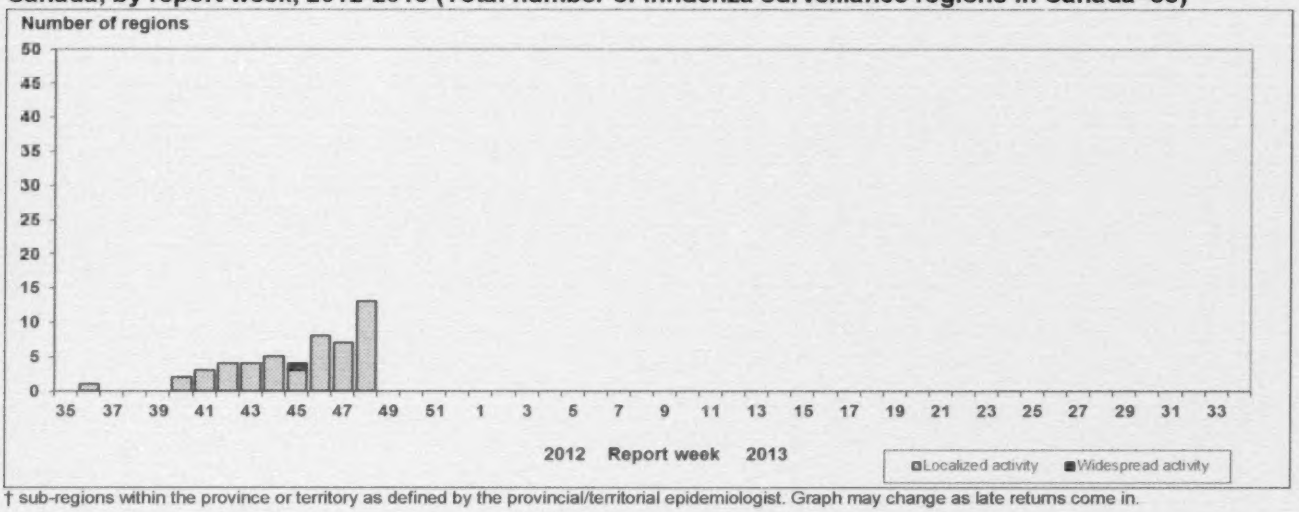
In week 48, 13 regions [in BC(1), AB(2), SK(2), ON(6), and QC(2)] reported localized activity, 16 regions [in BC(3), AB(3), SK(1), MB(1), ON(1), QC(4), NB(1), PE(1), and YK(1)] reported sporadic activity and the rest reported no activity (Figures 1 and 2). Eleven new influenza outbreaks were reported in week 48: all in long-term-care facilities [in BC(1), AB(3), ON(5), and QC(2)] (Figure 3).

**Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 48**



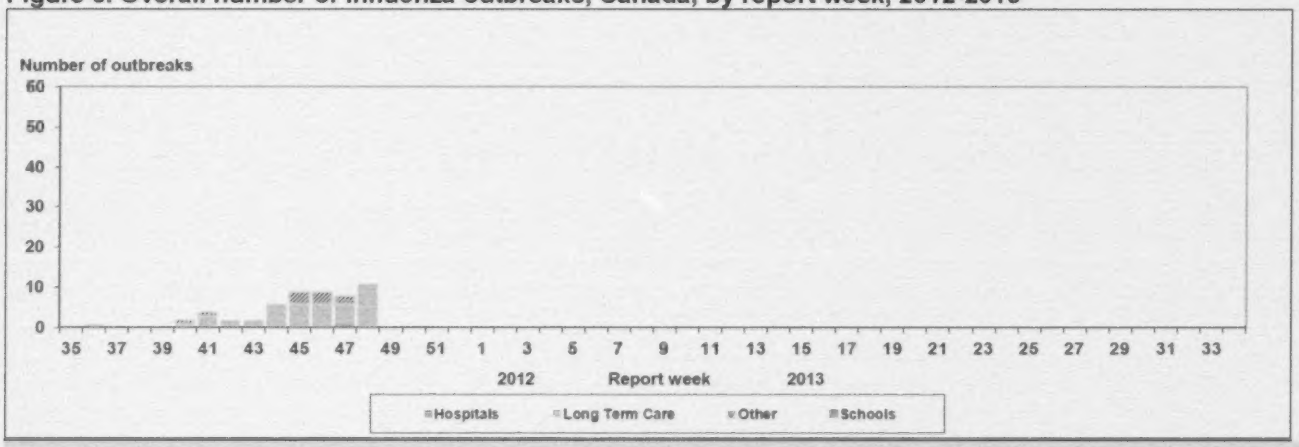

Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)**




† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013**




## Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from 9.5% in week 47 to 11.7% in week 48 (Figure 4). Among the influenza viruses detected this week (n=414), 97.3% were positive for influenza A viruses [of which 53.8% were A(H3), 1.0% were A(H1N1)pdm09, and 45.2% were A(unsubtyped)]; and 2.7% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 95.7% influenza A [61.0% A(H3), 2.5% A(H1N1)pdm09 and 36.5% A(unsubtyped)] and 4.3% influenza B (Table 1).

Detailed information on age and type/subtype was received for 929 cases to date this season (Table 2).The proportions of cases by age group were as follows: 13.0% were < 5 years; 11.6% were between 5-19 years; 18.0% were between 20-44 years; 16.6% were between 45-64 years of age; 40.8% were ≥ 65 years.

The percentage of tests positive for rhinovirus detections continued to decline in week 48 to 10.9%, and is now below the percentage positive for influenza. The percentage positive for RSV (6.7%) increased compared to the previous week. Parainfluenza (4.3%) detections were stable and coronavirus (3.1%) detections increased slightly. Other percentages of positive tests remained low: adenovirus 1.5%; hMPV 0.6% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

**Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013**

| Reporting provinces | November 25 to December 1, 2012 | | | | | | Cumulative (August 26, 2012 to December 1, 2012) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | | B | Influenza A | | | | | B |
| | A Total | A(H1) | A(H3) | Pano H1N1 | A (UnS)* | Total | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total |
| BC | 18 | 0 | 16 | 1 | 1 | 2 | 71 | 0 | 64 | 1 | 6 | 8 |
| AB | 66 | 0 | 51 | 0 | 15 | 1 | 234 | 0 | 197 | 11 | 26 | 10 |
| SK | 38 | 0 | 35 | 0 | 3 | 3 | 62 | 0 | 53 | 0 | 9 | 6 |
| MB | 2 | 0 | 2 | 0 | 0 | 1 | 14 | 0 | 13 | 0 | 1 | 3 |
| ON | 149 | 0 | 111 | 3 | 35 | 2 | 412 | 0 | 320 | 14 | 78 | 10 |
| QC | 128 | 0 | 0 | 0 | 128 | 2 | 279 | 0 | 6 | 0 | 273 | 12 |
| NB | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 1 | 0 |
| NS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PE | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 0 |
| NL | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 1 | 0 |
| **Canada** | **403** | **0** | **217** | **4** | **182** | **11** | **1081** | **0** | **659** | **27** | **395** | **49** |

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013***

| Age groups | Weekly (November 25 to December 1, 2012) | | | | | Cumulative (Aug. 26, 2012 to December 1, 2012) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | B | Influenza A | | | | B |
| | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total |
| <5 | 20 | 0 | 6 | 14 | 0 | 115 | 5 | 68 | 42 | 6 |
| 5-19 | 13 | 0 | 6 | 7 | 1 | 100 | 0 | 73 | 27 | 8 |
| 20-44 | 30 | 1 | 12 | 17 | 3 | 160 | 9 | 101 | 50 | 7 |
| 45-64 | 32 | 0 | 14 | 18 | 0 | 140 | 5 | 83 | 52 | 14 |
| 65+ | 85 | 0 | 32 | 53 | 0 | 376 | 4 | 219 | 153 | 3 |
| Unknown | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 3 | 0 | 0 |
| Total | 181 | 1 | 71 | 109 | 4 | 894 | 23 | 547 | 324 | 38 |

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013**

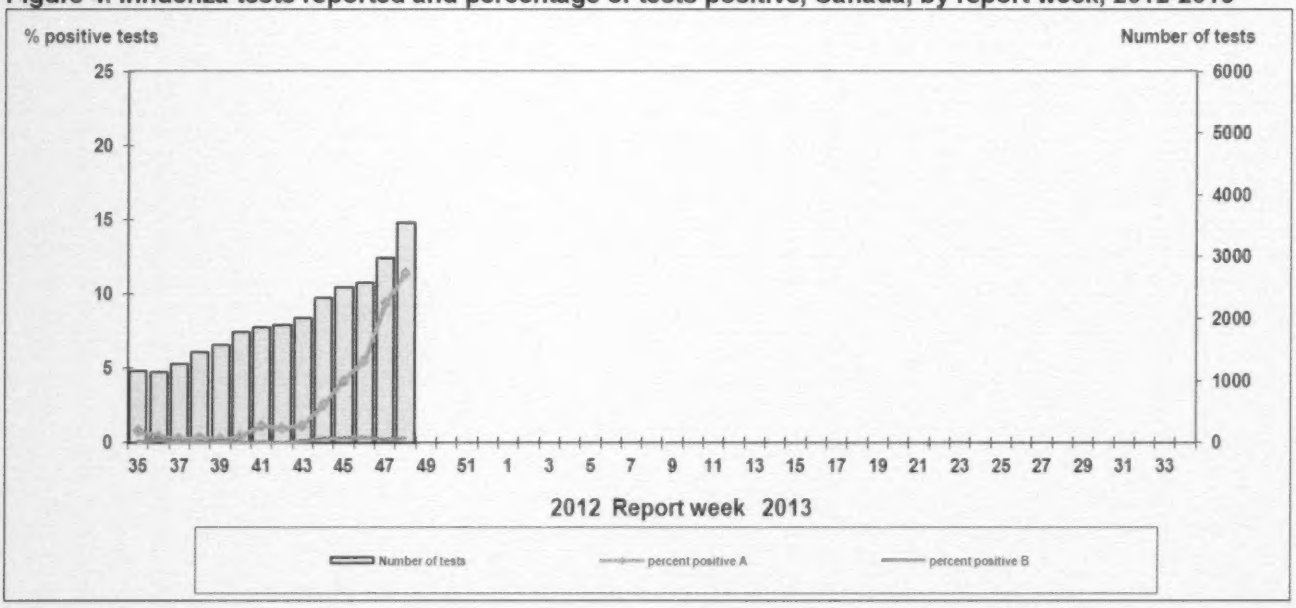
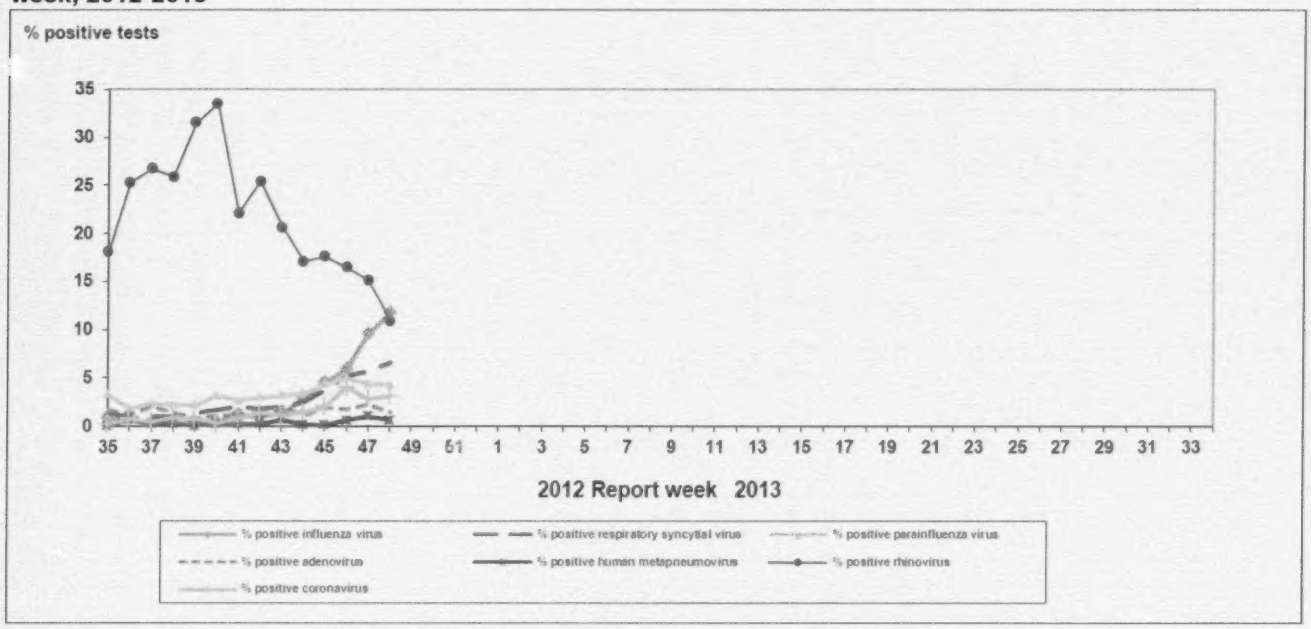


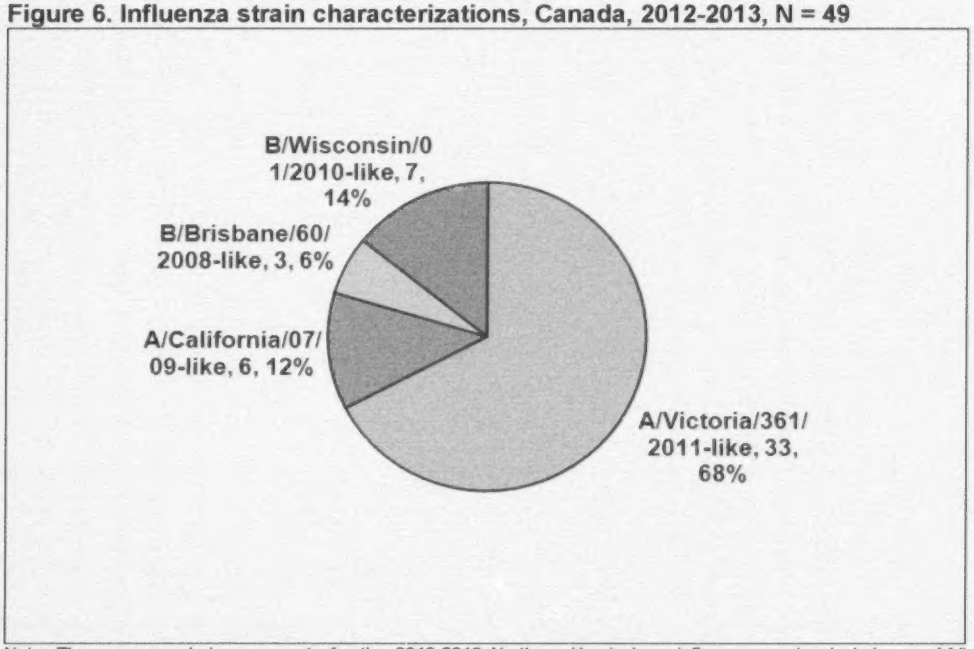
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013**




## Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 49 influenza viruses [33 A(H3N2), 6 A(H1N1)pdm09 , and 10 influenza B]. The 33 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The six A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, seven were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and three were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

**Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 49**




Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

## Antiviral Resistance

Since the beginning of the season, NML has tested 45 influenza viruses [28 A(H3N2), 7 A(H1N1)pdm09 and 10 B] for resistance to oseltamivir, and 44 influenza viruses [27 A(H3N2), 7 A(H1N1)pdm09 and 10 B] for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 78 influenza A viruses [72 A(H3N2) and 6 A(H1N1)pdm09] were tested for amantadine resistance and all were resistant (Table 3).

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013**

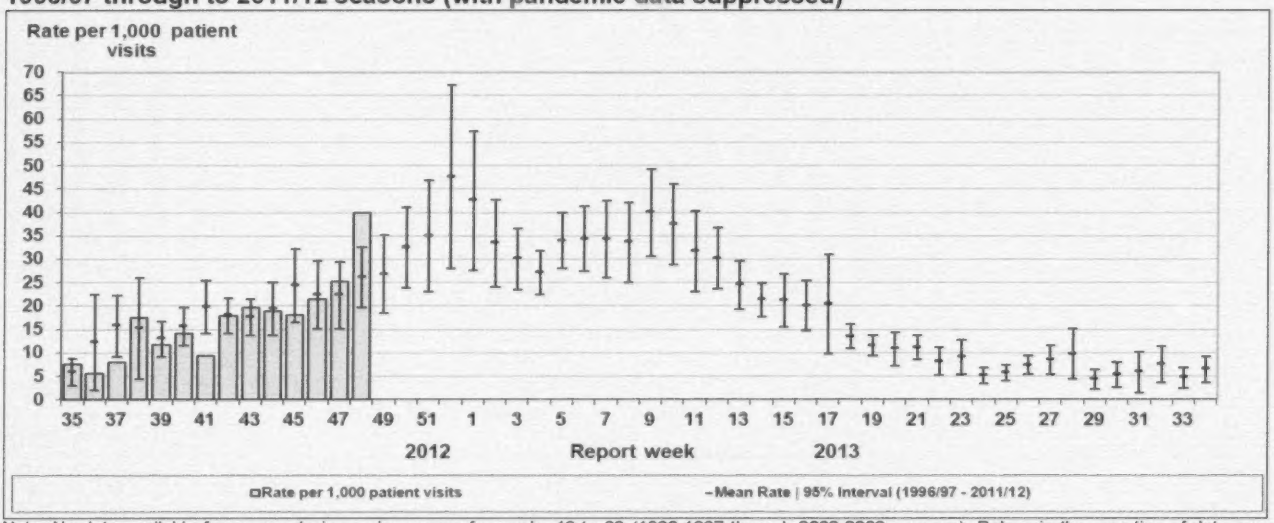
| Virus type and subtype | Oseltamivir | | Zanamivir | | Amantadine | |
|---|---|---|---|---|---|---|
| | # tested | # resistant (%) | # tested | # resistant (%) | # tested | # resistant (%) |
| A (H3N2) | 28 | 0 | 27 | 0 | 72 | 72 (100%) |
| A (H1N1) | 7 | 0 | 7 | 0 | 6 | 6 |
| B | 10 | 0 | 10 | 0 | NA* | NA* |
| TOTAL | 45 | 0 | 44 | 0 | 78 | 78 (100%) |

* NA – not applicable

## Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate in week 48 increased from the previous week: from 25.1 to 39.8 ILI consultations per 1,000 patient visits, which is above the expected level for this time of year (Figure 7). The highest consultation rates were observed in children 5-19 years of age (102.2/1,000) followed by children <5 years of age (62.5/1,000).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)**




Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Pharmacy Surveillance

Following the sharp increase in the Canadian antiviral prescription rate to 47.8 antiviral prescriptions per 100,000 new prescriptions dispensed in week 47, the rate continued to increase to 58.6 in week 48, due to increases in antiviral prescriptions reported from BC, AB, ON and SK. The current rate of 58.6/100,000 is higher than expected based on the current percentage of positive laboratory tests for influenza, and closer to the rate observed when the percentage of influenza detections was between 15%-18% (data from April 2011 to present). In week 48, the antiviral prescription rates increased for all age groups except among seniors (≥75 years), however, the rate among seniors remained the highest of all the age groups in week 48( 97.0/100,000).

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

## Severe Respiratory Illness Surveillance

**Paediatric Influenza Hospitalizations and Deaths (IMPACT)**
In week 48, eight new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Six cases were reported with unsubtyped influenza A [from QC(5) and MB(1)], and two with A(H3N2) [from AB]. One case in QC between 10-16 years of age was admitted to the ICU. The age distribution of hospitalized cases is a follows: one under 6 months of age, two between 6-23 months, three aged 2-4 years, and two aged 10-16 years.

Since the start of the 2012-13 season, a total of 27 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 25 (92.3%) with influenza A [of which 8 (32%) were A(H3N2) and 17 (68%) were unsubtyped], and two (7.7%) with influenza B. The distribution of cases by age group is as follows: 5 (18.5%) <6 months of age, 4 (14.8%) age 6-23 months, 8 (29.6%) age 2-4 years, 4 (14.8%) age 5-9 years, and 6 (22.2%) age 10-16 years. Five of the 27 cases (18.5%) were admitted to the ICU.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

**Influenza Hospitalizations and Deaths (Aggregate Surveillance System)**
In week 48, 11 laboratory confirmed influenza-associated hospitalizations were reported [AB(8), ON(3)]. Of these, five were in children aged 0-4 years, three in adults over 65 years of age, and three in adults aged 45-64 years. Eight of the 11 hospitalizations were influenza A(H3) and three were A(unsubtyped). Of the 8 cases with available data, two cases of influenza A(unsubtyped) were admitted to the Intensive Care Unit (ICU): one adult aged 46-64 years, and one adult aged 65+. There was one death in influenza A case aged ≥ 65 years. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

To date this season, 114 influenza-associated hospitalizations have been reported from five provinces (AB, MB, NL, ON and PE). The majority of cases have been influenza A (96.5%, 110/114). More than half of the cases (55.2%, 63/114) are ≥ 65 years of age. Of the 85 influenza A hospitalizations for which subtype was available, 10.6% (9/85) were due to influenza A(H1N1)pdm09, and 84.7% (72/85) were due to A(H3). Among the 60 cases with available data, there have been 10 hospitalizations for which admission to ICU was required, half of which were persons ≥ 65 years of age. To date this season, six deaths have been reported: all in influenza A cases (4 H3; 2 unsubtyped) aged 65 years or older. Note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

## International Influenza Updates

**WHO:** No update has been reported by the WHO since November 23, 2012.
*World Health Organization influenza update*

**United States:** No update has been reported by the CDC since November 30, 2012.
*Centers for Disease Control and Prevention seasonal influenza report*

**Europe:** In week 48, influenza activity in Europe remained low with sporadic detection of A(H3N2), A(H1N1)pdm09 and influenza B, primarily in the western part of the region. There is no clear predominance of influenza A or B in the region; of the 187 positive specimens in week 48, 48% were influenza A and 52% influenza B. Subtype information was available for 39 influenza A viruses: 44% were A(H3) and 56% were A(H1N1)pdm09. Since week 40, 868 specimens of influenza viruses have been typed: 59% were influenza A and 41% were influenza B. Among the 298 influenza A specimens for which subtype information was available, 57% were A(H3) and 43% were A(H1N1)pdm09. The number of sentinel specimens tested, and the proportion positive for influenza, increased among cases of influenza-like illness (ILI) and acute respiratory infection (ARI) compared to the previous week (from 2.9% to 6.4%). One hospitalization for severe acute respiratory illness (SARI) related to influenza A was reported this week.
*EuroFlu weekly electronic bulletin*

## Human Avian and Swine Influenza Updates

### Human Avian Influenza

No cases of human avian influenza A/H5N1 infection have been reported by the WHO since August 10, 2012.
*WHO Avian influenza situation updates*

### Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported this week.

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**ILI definition for the 2012-2013 season**

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**Definitions of ILI/influenza outbreaks for the 2012-2013 season**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

**Influenza Activity Levels Definition for the 2012-2013 season**

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.